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What is Morphine?

**Morphine** is a [potent](http://en.wikipedia.org/wiki/Potency_(pharmacology)) [opiate](http://en.wikipedia.org/wiki/Opiate) [analgesic](http://en.wikipedia.org/wiki/Analgesic) [psychoactive drug](http://en.wikipedia.org/wiki/Psychoactive_drug) and is considered to be the prototypical [opioid](http://en.wikipedia.org/wiki/Opioid).

Morphine is the most abundant alkaloid found in [opium](http://en.wikipedia.org/wiki/Opium), the dried sap (latex) derived from shallowly slicing the unripe seedpods of the opium, or common or edible, poppy, *Papaver somniferum*.

What it is used for?

In clinical medicine, morphine is regarded as the gold standard, or benchmark, of analgesics used to relieve severe or agonizing [pain](http://en.wikipedia.org/wiki/Pain) and [suffering](http://en.wikipedia.org/wiki/Suffering). Like other opioids, e.g. [oxycodone](http://en.wikipedia.org/wiki/Oxycodone) (OxyContin, Percocet, Percodan), [hydromorphone](http://en.wikipedia.org/wiki/Hydromorphone) (Dilaudid, Palladone), and diacetylmorphine ([heroin](http://en.wikipedia.org/wiki/Heroin)), morphine acts directly on the [central nervous system](http://en.wikipedia.org/wiki/Central_nervous_system) (CNS) to relieve [pain](http://en.wikipedia.org/wiki/Pain). Morphine has a high potential for [addiction](http://en.wikipedia.org/wiki/Substance_use_disorder); [tolerance](http://en.wikipedia.org/wiki/Drug_tolerance) and [psychological](http://en.wikipedia.org/wiki/Psychological) [dependence](http://en.wikipedia.org/wiki/Substance_dependence) develop rapidly, although [physical](http://en.wikipedia.org/wiki/Physical_property) addiction may take several months to develop.

What is Heroin?

**Heroin**, or **diacetylmorphine**, also known as **diamorphine**, is a [semi-synthetic opioid](http://en.wikipedia.org/wiki/Opioid) [drug](http://en.wikipedia.org/wiki/Drug) synthesized from [morphine](http://en.wikipedia.org/wiki/Morphine), a derivative of the [opium poppy](http://en.wikipedia.org/wiki/Opium_poppy). It is the 3,6-[diacetyl](http://en.wikipedia.org/wiki/Acetate) [ester](http://en.wikipedia.org/wiki/Ester) of morphine (*[di](http://en.wikipedia.org/wiki/Numerical_prefix" \l "Table_of_non-technical_numeric_prefixes)* (two)-[*acetyl*](http://en.wikipedia.org/wiki/Acetylation)*-*[*morphine*](http://en.wikipedia.org/wiki/Morphine)). The white [crystalline form](http://en.wikipedia.org/wiki/Crystalline_form) is commonly the [hydrochloride salt](http://en.wikipedia.org/wiki/Hydrochloride_salt) **diacetylmorphine hydrochloride**, though often adulterated thus dulling the sheen and consistency from that to a matte white powder, which heroin [freebase](http://en.wikipedia.org/wiki/Free_base_(chemistry)) typically is. 90% of heroin is said to be produced in Afghanistan.

What do you know about Heroin?

The [German](http://en.wikipedia.org/wiki/Germany) drug company [Bayer](http://en.wikipedia.org/wiki/Bayer) named its new [over the counter drug](http://en.wikipedia.org/wiki/Over_the_counter_drug) "Heroin" in 1895. The name was derived from the [German](http://en.wikipedia.org/wiki/German_language) word "*heroisch*" (heroic) due to its perceived "heroic" effects upon a user. It was chiefly developed as a [morphine](http://en.wikipedia.org/wiki/Morphine) substitute for [cough suppressants](http://en.wikipedia.org/wiki/Cough_medicine) that did not have morphine's addictive side-effects. [Morphine](http://en.wikipedia.org/wiki/Morphine) at the time was a popular recreational drug, and Bayer wished to find a similar but non-addictive substitute to market. However, contrary to Bayer's advertising as a "non-addictive morphine substitute," heroin would soon have one of the highest rates of [dependence](http://en.wikipedia.org/wiki/Drug_addiction) amongst its users.

What do they have in common?

Both of them are drugs and have the same central structure.

What functional groups do they belong?

Heroin belongs to acetylene. Morphine belongs to alkaloid.